Developing Markets and Payments for Forest Ecosystem Services

Why the interest in market-based approaches?

Many valuable ecosystem services provided by forests -- including watershed protection, biodiversity conservation and carbon storage – are gaining increasing attention from industry and government, as well as private citizens. These individuals and entities also are increasingly aware of the dangers and costs of allowing forest services to be degraded or lost. This degradation can have local impacts, such as floods and landslides, or broader impacts, like global climate change.

Degradation of forests has increased appreciation for the value of ecosystem services that they can provide, accompanied by greater demand and willingness to finance forest conservation.

Vital forest services include watershed protection, biodiversity conservation, and carbon storage. Forest degradation can lead to impacts on these services ranging from local scale flooding and degradation of water supplies, to global scale climate change, to loss of ecosystem resilience, scenic beauty, and accessible sources of sustainable timber and non-timber forest products, as well as all other services supported, directly or indirectly, by well-functioning forest ecosystems.

Forest owners, both public and private, have had little or no financial incentive to maintain ecosystem services, because they have traditionally received income only from timber extraction or by converting forested land to other uses. Owners also lack incentives to conserve because the benefits of conservation often occur downstream or offsite. A decreasing supply of healthy watersheds, along with heightened awareness, is driving the development of markets and market-based instruments to pay forest holders for the ecological services they provide.

A recent review by International Institute for Environment and Development (IIED) identified over 280 cases of actual and proposed payment schemes for services of carbon sequestration, biodiversity conservation, watershed protection, landscape beauty, and for bundled combinations of these services. These vary depending on the characteristics of the particular service, and the extent to which it can be made exclusive to those who pay for it. For example, user fees can be charged for piped water or for entrance to national parks because those who don't pay for them can be easily excluded from receiving the service.

Types of markets and payment schemes

These arrangements can be grouped into three broad categories:

> ***Voluntary Contractual Arrangements*** refer to contracts directly made between buyers and sellers. These may be agreements between private parties but may also be between public and private parties. This often occurs when transaction costs make it unlikely that private initiatives will be taken, as in cases involving numerous small landholders, or when private parties lack the necessary authority for implementing plans. Clear property rights and enforceable contracts are key elements. In Costa Rica, La Esperanza hydropower producer formed an agreement to pay the Monteverde Conservation League, an NGO that holds most of the upper catchment, for maintenance of existing forest cover so as to maintain stable stream flows and reduce sedimentation.
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> ***Public payment schemes*** refer to arrangements that are not necessarily voluntary, in which government and policy considerations may play stronger roles in the collection and disbursement

of funds, in establishing levels of payments and compensation, and in identifying priority areas toward which payments will be directed. This is an approach that can increase transparency and public participation. Examples are the U.S. Conservation Reserve Program that pays farmers for conservation practices and the Chinese government's Forest Benefit Compensation Fund established for restoring forests. In Colombia, hydroelectric and water utilities are required to allocate a fixed percentage of revenues to an ecosystem fund as an environmental services tax that is used to pay private landowners for watershed management and to purchase sensitive lands.

Trading schemes involve governments create demand for forest services by establishing regulatory caps or targets. This, in turn, provides a basis for allocating individual emission quotas that can be traded. In New South Wales, Australia, for instance, the government is piloting proposals for salinity credit trading rooted in broader basin-wide salinity targets. Based on these targets, the government has allocated licenses to dischargers of salinity. The idea is that those wishing to exceed a salinity quota can purchase salinity credits from those who have taken action to reduce salinity, e.g. by protecting and managing native vegetation. Other examples include tradable development rights pioneered in urban areas of the U.S., including wetland mitigation credits and emerging nutrient trading schemes in some U.S. states. Under International Emissions trading, developed countries can reduce carbon emissions at a lower cost and trade credits for emission reductions with other developed countries.

Questions for the assessment of potential opportunities

There is no single approach to developing markets for ecosystem services. However, despite the diversity of contexts and economic opportunities found in each situation, innovators face many common issues when considering the development of new markets. These issues can in turn provide a basis for recognizing potential opportunities, and selecting appropriate arrangements. Key questions that should be considered in this assessment are:

- What services are provided and under what ecological conditions? What are the direct and demonstrable benefits? Is the service becoming scarcer and more valuable? What would the consequences be of losing it? What are the management options?
- What is the economic value of the service and how does it contribute to livelihood and general welfare? If it is possible to replace the service, what would it cost?
- What is the unique cultural, legal and regulatory context? Are proposed arrangements appropriate to this context and to the scale of the problem? For example, VCAs tend to work better at smaller scales, where it is easier to establish links between causes and effects, and agreements can be better tailored to local conditions. Conversely, trading schemes tend to work better at larger scales, because this provides a larger pool of buyers and sellers that require a stronger regulatory framework.
- What are the rights and responsibilities of stakeholders – e.g., is the service considered a right? Property rights may need to be defined to clarify who has access to the benefits and who has responsibilities for costs of services that were previously considered "free." This may be a contested process, requiring negotiation and conflict resolution.
- Who are the potential buyers and sellers? How much are buyers willing and able to pay for the service? Is this sufficient to ensure its delivery? Are owners willing to sell at that price?
- Can the service be measured and monitored? This requires an understanding of the biophysical relationships related to service delivery. It also requires that the service be defined in terms of quantitative indicators that can provide the basis for transactions.

- What support services and capacity building are required, i.e., what kind of institutions are needed to facilitate payments, provide financing, manage risk and uncertainty, conduct verification, monitoring, accounting, certification, planning, and oversight?
- Who benefits and who pays the costs? Are benefits and costs equitably shared? Would the proposed initiative help to alleviate poverty or exacerbate it?

Preliminary Lessons

It is important to keep in mind that market development is not an automatic process that can occur overnight. Support should evolve in a way that is appropriate to local conditions and regarded as fair by stakeholders, which can have spin-off benefits of building and strengthening public and democratic institutions.

Developing markets means invoking a wide variety of tools and understanding the flexibility of each. Innovators located in areas with weak public institutions may find that self-organized private deals are the most effective. Those in highly regulated environments may find that the additional effort to set up a trading system is more than compensated by dramatically increased efficiency in reaching goals. Where public institutions play an important role, public payment schemes are more likely to work.

Key references:

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Other links:

Conservation Finance Alliance Provides a training guide to conservation finance mechanisms, and presentations from a retreat attended by 19 conservation organizations to begin to formalize an alliance to promote the use and expansion of sustainable finance mechanisms for conservation of biodiversity.